

## Multiparameter Fiber Optic Sensor Suite for Structures, Phase I

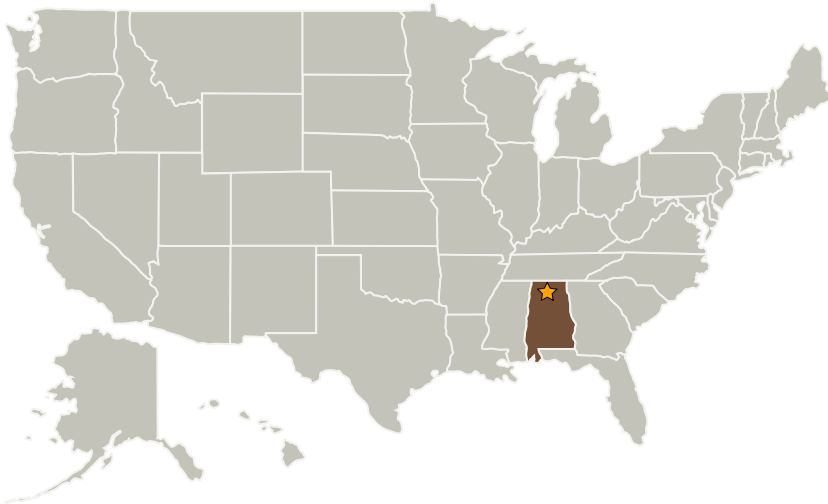
Completed Technology Project (2004 - 2004)



## Project Introduction

Structural Health Monitoring (SHM) for microspacecraft is a rapidly growing technology area for the use of fiber optics and MEMS. Morgan Research Corporation proposes an innovative system called a fiber optics sensor suite (FOSS) that combines the strain/damage detection capability of fiber with the temperature, acceleration, and shock determination of MEMS. The proposed research allows for optical fiber to be used as a distributed backbone-sensing member with nodes of environmental sensors placed at strategic locations along the structure. The optical fiber is able to sense damage and external or internal loads on the structure while MEMS nodes monitor the spacecraft's surroundings. The optical fiber acts as a communication link between the nodes and to acquire and transmit data in a format not susceptible to EMI or environmental noise.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Marshall Space Flight Center (MSFC)	Lead Organization	NASA Center	Huntsville, Alabama
Morgan Research Corporation	Supporting Organization	Industry	Huntsville, Alabama



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## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Center / Facility:**

Marshall Space Flight Center (MSFC)

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

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## Primary U.S. Work Locations

Alabama

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Chris Heaton

## Technology Areas

### Primary:

- TX14 Thermal Management Systems
  - └ TX14.3 Thermal Protection Components and Systems
    - └ TX14.3.5 Thermal Protection System Instrumentation